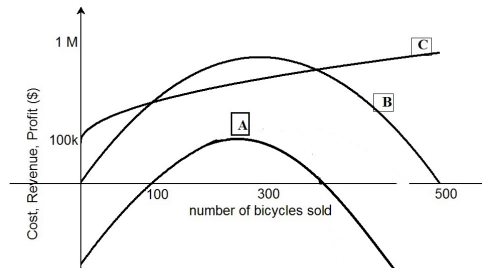


First Name: _____ Last Name: _____

Student-No: _____ Section: _____

Short answer questions1. 2 marks Each part is worth 1 mark.

- (a) A company manufactures bicycles. The figure below shows Cost, Revenue and Profit as a function of number of bikes sold. Mark these functions appropriately (for example, What does graph A represent? Cost, Revenue or Profit? and so on for graph B and C).

Answer:

- (b) Compute $\lim_{t \rightarrow 0} \frac{\sqrt[3]{-1-t^2}}{t^3 - e^t}$. If limit does not exist, write DNE.

Answer: **Long answer questions — you must show your work**

2. 2 marks Amir has an offer from his bank to change his current investment plan with annual interest rate of 12% compounded continuously to a new plan with annual interest rate of r compounded semi-annually. What should the minimum r be so that he at least makes the same amount of money?

Answer:

3. 2 marks Compute the limit $\lim_{x \rightarrow 1} \frac{x^4 - 1}{2x^2 + 4x - 6}$

Answer:

4. EatPumpkin is a new chain restaurant with its famous pumpkin appetizer. It is found that if the price of pumpkin appetizer is \$8 each, an average of 60 people order the dish each day. When it drops the price of the appetizer to \$5, the number ordering it rises to 75. Assume that the demand q is a linear function of the price p and each appetizer costs the restaurant \$3 (neglect constant cost).

- (a) 2 marks Find the linear demand equation as a function of price (p)

Answer:

- (b) 2 marks Find the weekly profit function $P(q)$.

Answer:

- (c) bonus 1 marks What is the optimized price for the pumpkin appetizer?

Answer: